NORTH DAKOTA EASEMENT - DISTRICTS 4 and 4A NARRATIVE REPORTS JANUARY - DECEMBER 1952

LAKE ILO REFUGE.

I. GENERAL.

A. Weather Conditions.

Precipitation was below average for the entire period. There were five killing frosts in May and there has not been a frost in August. The summer has been warmer than normal. Two hail storms occurred in this vicinity - one in July and one in August.

Weather Data Tabulation

Year	Month	Precipitation		Temperature Maximum	Temperature Minimum
1952	May	1.45		93	22
	June	2.92		97	34
	July	2.33		97	51
	August	1.87		99	35
	Total	8.57	Extremes	99	22
1951	May	0.64		86	23
	June	2.02		84	35
	July	2.78		98	52
	August	2.78		100	29
	Total	8.22	Extremes	100	23
1950	May	3.93		83	26
	June	4.31		91	30
	July	0.72		97	38
	August	0.83		91	29
	Total	9.69		97	26

B. Water Conditions.

The lake level was approximately level with spillway crest on May 1, and has since receded to 18 inches below spillway crest. Water conditions have generally been better than usual. The lake has been used for swimming during most of the report period - usually algae conditions prevent such extensive use.

C. Fires. None.

II. WILDLIFE.

A. Migratory Birds.

1. Population and Behavior.

The populations of all migratory birds showed a slight decrease from 1951 for the months of May, June and July. It is believed

that the numbers present in August, however, were higher than in August of 1951. Three brood counts were made during the period: on June 23 27 broods were counted; on July 10 53 broods; and on August 12 - 8 broods. The total count, excluding Class II and Class III broods from the second and third counts, was 53. This total brood count was the smallest ever made on Lake Ilo. The total brood count for 1951 was 66, 1950 - 128, 1949 - 206, and 1948 - 200.

The estimated population in early July was 2,000; in August it was 12,000 - (5000 Mallard, 3,000 Pintail, 2,000 Blue-winged Teal and 2,000 other ducks - mostly Shoveller, Gadwall and Baldpate). An estimated 3,000 Coot were using the refuge the latter part of August.

The shore bird population appeared to be larger than last year. It is estimated that 3,000 used the area during the period. They consisted of the following - Wilson's Phalarope, Greater and Lesser Yellow-legs, Western Willets, Killdeers, Avocets, Marbled Godwits and Spotted Sandpipers. White Pelicans were present throughout the period - 240 were counted on August 30. More Great Blue Herons, Black-crowned Night Herons and Double-crested Cormorants were present this year than a year ago.

2. Food and Cover.

Food and cover conditions are good. It is believed that the dense cover was one factor involved in the lower brood count this year. There will be a good supply of food for ducks this fall because of the short crops and hail-damaged crops that were not harvested.

B. Upland Game Birds.

It is estimated that 100 Pheasants were on the area at the beginning of the period; and it is estimated that 250 are present at the end of the period. Nesting conditions were good, but there were not as many broods as expected. A large number of very late broods have been observed.

It is estimated that there are a few more Sharp-tailed Grouse present this year. Three broods of Sharp-tails have been observed on the refuge this period - and a number of broods have been observed in the vicinity.

A few Hungarian Partridge have been seen during the period. Three broods have been observed on the refuge during August. It is believed their numbers are about the same as last year.

C. Big Game Animals.

Two female Mule-deer were observed several times on the refuge and a number have been observed in the vicinity. A few antelope have been observed in the vicinity of the refuge - it is possible a few used the refuge.

D. Fur Animals, Predators, Rodents, and other Mammals.

A number of Mink and numerous signs have been observed on the refuge this period. It is believed that their population is larger than last year.

More Weasel have been observed this period than usual. It is believed their population is even larger than last year. (Last year it was believed that their numbers were higher than at any time since the refuge was established.)

The Muskrat population appears to have increased from last year - it is estimated that 300 to 500 are now using the area.

No Coyotes or Fox have been observed on the refuge, but a few signs of fox have been observed and several have been seen in the general vicinity. Fox populations on off-refuge areas are higher this year. The Coyote population is very small in this locality.

A number of Beaver have been observed on the refuge during the period. Some damage has been done to trees in the Recreational Area.

Skunks are very numerous on the refuge and in the vicinity. 56 have been trapped near headquarters and along the road to Dunn Center from July 14 to the end of the period. There are still several skunks left, however. It is believed the large skunk population has had an adverse effect on the nesting of waterfowl and upland game birds on the refuge and in the surrounding areas. Five duck nests were found near headquarters and they were all destroyed by skunk. One of these nests, a Mallard's, was in the same place where a Mallard had nested for four consecutive years. It is believed if something is not done to reduce the skunk population in this vicinity (other than on the refuge) there will be a great deal of nest destruction next year.

E. Predacious Birds, including Crows, Ravens, Magpies.

A few hawks were present during the period - mainly Marsh Hawks with a few Swainson's and Rough-legs. No eagles were seen during the period.

Crows were present in usual numbers.

F. Fish.

Perch are very numerous in the lake and fishermen have been taking a large number of them during July and August. The perch were a year old this spring and have reached an average length of 7½ inches - approx. one percent of the perch taken are 10 to 12 inches long. A few northern pike have been observed, 11 to 14 inches long, and a few walleyed pike have been seen that were 10 inches long.

The Fishing Season opened May 16 and will close September 15. Winter fishing will open December 1 and will close February 28.

III. REFUGE DEVELOPMENT - MAINTENANCE

A. Physical Developments.

The following maintenance and construction projects were completed during the period:

1. Repaired refuge boundary fence that was damaged by high water and snow.
2. Took up and planted 400 cotton wood trees along shore line; planted 800 trees in shelter belt near headquarters.
3. Cultivated trees several times.
4. Removed one-half mile of old refuge fence.
5. Built one-half mile of new refuge fence - installed 10 steel corner posts in concrete.
6. Installed congowall covering on bathroom in Lake Ilo residence.
7. Installed new glass in windows of buildings at headquarters that were broken by hail.
8. Mounted and installed air compressor unit in garage at headquarters.
9. Trapped 56 skunks on refuge near headquarters.
10. Gathered data for rent survey.
11. Repaired motor on borrowed 1½" centrifugal pump and set up unit for watering lawn at headquarters.
12. Stained all roofs of buildings and painted exterior of residence and granary.
13. Made brood counts on Ilo June 23, July 10 and August 12.
14. Made minor repairs on Diamond T truck #I-16956 and IHC Pickup #I-16949 and on other Government-owned equipment.

B. Plantings.

No grain crops were planted by refuge personnel. The following crops were planted by share-croppers:

Tom Donohoe: Permit No. 82 - 13 acres of wheat, 10 acres of corn, 22 acres summer fallow. Wheat was harvested by share cropper and corn was left standing for refuge share.

Charles Schollmeyer: Permit No. 81 - 22½ acres summer fallow and 22½ acres barley and wheat. Refuge share was left standing in field. A 50 percent hail loss occurred on August 15th on this crop.

IV. ECONOMIC USES.

A. Grazing.

One grazing permit is in effect at the present time.

B. Haying.

Two haying permits were issued and two are yet to be issued. 75% of the hay has been harvested to date.

C. Other Uses. None.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

None.

VI. PUBLIC RELATIONS

A. Recreational Uses.

The recreational area was again under the management of the Dunn County Park Board under a cooperative agreement with the Service. They have cultivated trees, mowed grass, installed new benches in the bath houses and have kept the grounds clean and orderly.

10,800 northern pike were stocked in Lake Ilo by the State Game and Fish Department. No contact was made with refuge personnel in regards to stocking these fish, but it was highly publicized after they were planted.

The refuge manager has since had a discussion with the State Game and Fish Commissioner and it was agreed that the State and the Service should get together on such matters. It was suggested that the State Fisheries Department work in cooperation with our Branch of Fisheries on the fisheries management of federal waters within the State.

DISTRICT IV EASEMENTS

HIDDENWOOD

I. GENERAL.

Precipitation for this area was below normal. The water was approx. three feet higher than normal for this time of the year (due to a plug that someone has put in the highway culvert). A large number of the trees around the lake shore have died due to high water. It is estimated that 95 percent of the bulrushes have been killed out by the high water level.

The public used this area a great deal this summer for boating and swimming.

II. WILDLIFE.

A brood count was made on July 7 and one brood of Canvasbacks and one brood of Coot were seen. When visited on September 2, five broods of

Canvasback were seen and an estimated 60 adults. Ducks seen consisted mainly of Blue-winged Teal, Readhead and Canvasback. Three sharp-tailed grouse were seen, but no other upland game birds were observed during the period. It is believed, however, that a few Pheasant, Sharp-tails and Huns. are using the area.

The muskrat population appears to be very small as there is not much food. A few mink signs were observed and it is believed a small number are present.

III. PHYSICAL DEVELOPMENTS.

1. Brood count and wildlife observations.

LAKE PATRICIA

I. GENERAL.

Rainfall was about normal during the period and good crops were harvested in this vicinity. Water levels were believed to be higher than in the past - due to the fact that the State Game and Fish Dept. cleaned out the diversion ditch and removed the plug in the creek that supplies water for the lake. When visited on July 9 a small stream of water was flowing over the spillway.

II. WILDLIFE.

A brood count was made on July 9 and 17 broods were counted. It is believed only a small percentage were actually seen as the escape cover was very good. On August 8 approximately 1350 ducks were observed - mainly Mallards, Pintails, and Coot. A few Blue-wings and other species were also seen. Approximately 30 young grebes (Horned, Pied-billed and Red-necked) were also observed.

Two broods of Pheasant were observed on July 9. It is believed their population is about the same as last year but considered small compared with the past. No Sharp-tails or Huns. were seen but undoubtedly a few are using the area.

One beaver house and 2 beaver were seen. Muskrat and Mink sign were observed and it is believed their numbers are larger than in the past. Skunk signs were numerous and it is believed there are more than usual.

III. PHYSICAL DEVELOPMENTS.

1. Brood counts and wildlife observations.
2. Checked structure and markers.

LEGION LAKE

I. GENERAL.

Rainfall was below normal during the entire period. The water level, however, has remained good considering the dry weather. On May 1 a small stream of water was flowing over the spillway and on July 7 the water was eight inches below the crest; at the end of the period it was 15 inches below spillway crest. Crops were poor in this vicinity.

II. WILDLIFE.

On May 17 - 350 ducks were counted - Shovellers, Mallards, Pintails, Blue-winged Teal, Canvasbacks, Baldpates and Gadwalls in that order. A brood count was made on July 7 - 13 broods and 125 adult ducks were counted. When visited on September 2 the following birds were observed; 300 White Pelican; 400 ducks (consisting of Mallard, Pintail, Blue-winged Teal, Ruddy and Shovellers); five Great Blue Herons; six Black-crowned Night Herons; four Avocets; 60 Yellow-legs and 3,000 gulls.

No Pheasants, Sharp-tails or Huns. were observed on the refuge; a few were seen in the surrounding vicinity.

Muskrat and Mink signs were observed and it is believed the usual numbers are present. Skunk are believed to be numerous in this vicinity and a number are using the refuge.

III. PHYSICAL DEVELOPMENTS.

1. Brood counts and wildlife observations.
2. Structures and water level checked.

McLEAN

I. GENERAL.

Rainfall was below normal during the first three months and normal for August. Most of the rainfall was during the last week of August. Poor to fair crops were harvested in this vicinity. Water levels have been good during the period. A small stream was flowing over the spillway at the beginning of the period; water was five inches below crest on July 7, and sixeinches below on September 2. The bulrushes have done very well on this area the last few years - approximately two-thirds of the lake is covered with rushes.

II. WILDLIFE.

A brood count was made on July 7 and 7 broods were observed; as well as 115 adult ducks and 50 Coot. On September 2 - the following birds were seen: 1,000 Mallards; 300 Blue-winged Teal; 200 Pintails; 100 Shovellers; 200 Coot; 50 Pied-Billed Grebe and 30 Yellow-legs.

No Pheasants, Sharp-tails or Huns. were observed, but it was reported by a farmer living on the refuge that a few are using the area.

A number of Muskrats was observed and it is believed the area has a large population. A few Mink signs were observed and it is believe the usual numbers are present.

III. PHYSICAL DEVELOPMENT.

1. Brood counts and wildlife observations.
2. Structures and water levels checked.

PRETTY ROCK

I. GENERAL.

Rainfall was about normal for the entire period; good crops were harvested in this vicinity. Water levels have been very good during the period. A small stream was flowing over the spillway in May; water was two inches below crest on July 7 and six inches below on August 29.

II. WILDLIFE.

On May 12 about 250 ducks were present. On May 16 a brood of Pintails was observed - the first seen this year. A brood count was made on July 8 and 49 broods were observed. An estimated 500 adult ducks were also present. When visited on August 29 an estimated 4,000 ducks were on the refuge. Three broods of Ruddys, 1,000 Coot, 50 Yellow-legs, four Avocets, 30 Pied-billed grebes and three Great Blue Herons were seen.

Two brood of Pheasants were observed on the refuge on July 8, and 12 pheasants were observed on August 29. The Pheasant population is believed to be about the same as last year.

No Sharp-tailed Grouse or Hungarian Partridge were observed this period but it is believed a few are using the refuge.

According to signs, the Mink and Muskrat population is about the same as last year.

III. PHYSICAL DEVELOPMENTS.

1. 80 Cu. Yds. rock hauled and placed below spillway.
2. 16 Cu. Yds. of rock hauled and placed on road grade that crosses refuge.
3. Made brood count and wildlife observations.
4. Checked structures and water level.
5. Contacted farmer living on refuge in regards to duck damage.

STEWART LAKE

I. GENERAL.

Rainfall was below normal for the entire period, but crops were fair in this vicinity. The water level was quite good considering the dry season. The water was approximately level with spillway crest at the beginning of the period and receded to two feet below by the end of the period.

The spillway is to be rebuilt this fiscal year.

II. WILDLIFE.

A brood count was made on July 8 - eight broods, 60 adult ducks and 300 shore birds were observed. When visited on August 29 the following birds were observed: 3,000 ducks (mostly Mallard), 600 Coots, 100 Pied-billed grebes and 200 shore birds.

Of special interest was an albino Mallard that was observed on August 29 - it was believed to be a male.

No Pheasants have been observed on the refuge this period and only a very few in the vicinity. Their number is very small in this locality due to the severe winter last year. It is believed, however, that a few Pheasants, as well as a few Sharp-tails and Huns., are using the area.

A few signs of Mink and Muskrats were observed. It is estimated that approximately the same numbers are present as last year.

Skunk are numerous in this vicinity. It is believed that more than usual are present.

III. PHYSICAL DEVELOPMENTS.

1. Brood counts and wildlife observations.
2. Boundary markers and structures checked.

WHITE LAKE

I. GENERAL.

Rainfall was below normal during the entire period. A severe hail storm occurred during July - 100 percent losses occurred on the refuge and in the nearby vicinity. The water level was approximately level with spillway crest at the beginning of the period and receded to $2\frac{1}{2}$ feet below crest by the end of the period.

II. WILDLIFE.

A brood count was made on July 8 and 18 broods were recorded. 150 adult ducks were also counted. When visited on August 29 the following

birds were observed: 2,000 ducks, 500 Coots and 200 shore birds.

No Pheasants, Sharp-tailed Grouse or Hungarian Partridge were observed on the refuge this period. One Pheasant was seen near the refuge. It is believed that a few of each of the three upland game species are probably present on the refuge.

A few Mink and Muskrat signs were observed - their numbers are believed to be about the same as last year.

Skunks are numerous in this locality and on the refuge.

III. PHYSICAL DEVELOPMENTS.

1. Placed four Cu. Yds. of rock above spillway crest.
2. Brood counts and wildlife observations.
3. Structures and water levels checked.

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NOTE: The above report on Lake Ilo and District IV Easement Refuges was prepared mainly from data supplied by Mr. Chesley M. Dinkins, Maintenance Man (General) in charge at Ilo. Some data were obtained by the refuge manager and the Student Assistant, Stanley E. Smith.

DISTRICT IV EASEMENT REFUGE BROOD DATA

	Species	Number of Broods	Number of Young
1. Lake Ilo.	Mallard	15	95
	Gadwall	3	21
	Baldpate	1	6
	Pintail	6	37
	B. W. Teal	4	27
	Shoveller	7	42
	Unid.	17	122
	Total	53	350
2. Hiddenwood	Canvasback	6	37
	Coot	1	5
	Total	7	42
3. Lake Patricia	Mallard	5	32
	Pintail	5	31
	Shoveller	2	13
	Unid.	5	36
	Total	17	112
4. Legion Lake	Mallard	3	19
	Baldpate	1	6
	Pintail	6	37
	Shoveller	2	13
	Unid.	1	7
	Total	13	82
5. Lake McLean	Pintail	5	31
	Pied-billed Grebe	1	3
	Unid.	1	7
	Total	7	41
6. Pretty Rock	Mallard	9	57
	Baldpate	6	38
	Pintail	15	92
	B. W. Teal	4	27
	Shoveller	14	89
	Ruddy	1	5
	Total	49	308
7. Stewart Lake	Mallard	2	12
	Baldpate	1	6
	B. W. Teal	3	20
	Unid.	2	14
	Total	8	52

EASEMENT REFUGE BROOD DATA (Continued)

	Species	Number of Broods	Number of Young
8. White Lake	Mallard	4	25
	Pintail	9	55
	B. W. Teal	1	7
	Shoveller	4	25
	Total	18	112

The number of young is based on the average brood size given in Mr. R. E. Griffith's circular on "Waterfowl Brood Counts".

The total production for Lake Ilo and District IV Easements was 172 broods and 1099 young; in 1951 there were 171 broods, 1086 young; in 1950 193 broods, 1191 young; in 1949 252 broods, 1630 young.

65

WATERFOWL

Refuge Lake Ilo Months of May to August 1958

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard			8000	8/20-31			15	250	6000
	Black duck									
	Gadwall			100	"			3	50	150
	Baldpate			1000	"			1	80	1200
	Pintail			3000	"			6	100	4000
	Green-winged teal			20	"			1	12	40
	Blue-winged teal			4000	"			4	75	3000
	Cinnamon teal									
	Shoveller			1000	"			7	800	1200
	Wood duck									
	Redhead			200	8/1-20					200
	Ring-necked duck									
	Canvas-back			100	"					100
	Scaup			1000	"					1200
	Golden-eye			10	"					
	Buffle-head			10	"					
	Ruddy duck			40	8/20-31			2	30	30 *
	Unidentified							17		
IV.	Coot:			8000	8/20-31			8	50	4000

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production: . . . . . .

Geese _____

Ducks 900

Coots 80

Total waterfowl usage during period 21,140

Peak waterfowl numbers 16,650

Areas used by concentrations Entire Lake

"

"

Principal nesting areas this season Entire Refuge

"

"

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

66

WATERFOWL

Refuge Middenwood Months of May to August 1952

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose									
III. Ducks:									
Mallard			200	8/20-30			0	20	250
Black duck									
Gadwall			10	"			0		10
Baldpate			20	"			0	10	40
Pintail			100	"			0	20	200
Green-winged teal									
Blue-winged teal			100	"			0	20	150
Cinnamon teal									
Shoveller			30	"			0	10	50
Wood duck									
Redhead			30	5/1-20			0		30
Ring-necked duck									
Canvas-back			50	8/20-30			6	60	80
Scaup			100	5/1-20					
Golden-eye									
Buffle-head									
Ruddy duck			30	8/20-30				10	40
IV. Coot:			50	8/20-30			1	20	50

(over)

3-1750
(Sept.1950) Interior - Duplicating Section, Washington, D.C. 82449

Form NR-1

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks 170

Coots 80

Total waterfowl usage during period 850

Peak waterfowl numbers 700

Areas used by concentrations _____

_____

Principal nesting areas this season _____

Reported by Chesley M. Pinkins

INSTRUCTIONS

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(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

67

WATERFOWL

Refuge Lake Patricia Months of May to August 19 52

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose									
III. Ducks:									
Mallard			1000	8/20-30			5	80	1200
Black duck									
Gadwall			20	"			0	20	20
Baldpate			80	"			0	80	100
Pintail			1000	"			5	80	1000
Green-winged teal									
Blue-winged teal			200	"					200
Cinnamon teal									
Shoveller			200	"			2	60	200
Wood duck									
Redhead			20	7/9-20			0		20
Ring-necked duck									
Canvas-back			20	8/1-20			0	10	
Scaup			200	"			0		200
Golden-eye			10	"			0		10
Buffle-head			10	"			0		10
Ruddy duck			80	8/20-30					80
Unidentified							5		
IV. Coot:			200	8/20-30			0	80	200

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks 320

Coots 80 . . . . . .

Total waterfowl usage during period 5,220

Peak waterfowl numbers 2,995

Areas used by concentrations _____

" _____

" _____

-Principal nesting areas this season _____

- _____

" _____

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

68

WATERFOWL

Refuge Legion Lake Months of May to August 1952

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose									
III. Ducks:									
Mallard			400	8/20-30			5	80	400
Black duck									
Gadwall			40	"					40
Baldpate			100	"			1	20	150
Pintail			200	"			6	100	300
Green-winged teal									
Blue-winged teal			200	"			0	80	200
Cinnamon teal									
Shoveller			200	"			2	80	300
Wood duck									
Redhead			20	8/1-20					20
Ring-necked duck									
Canvas-back			20	"				10	20
Scaup			200	"					200
Golden-eye									
Buffle-head									
Ruddy duck			30	8/20-30				5	30
Unidentified							1		
IV. Coot:			100	8/20-30					150

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks 295

Coots _____

Total waterfowl usage during period 1,810

Peak waterfowl numbers 1,510

Areas used by concentrations _____

Principal nesting areas this season _____

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge McLean Months of May to August 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard			2000	8/20-30			0	30	1200
	Black duck									
	Gadwall			40	"			0	10	50
	Baldpate			200				0	10	
	Pintail			200	"			8	30	300
	Green-winged teal									
	Blue-winged teal			300	"			0	30	400
	Cinnamon teal									
	Shoveller			100	"			0	30	150
	Wood duck									
	Redhead			20	8/1-20					30
	Ring-necked duck									
	Canvas-back			20	"					20
	Scaup			100	"					150
	Golden-eye									
	Buffle-head									
	Ruddy duck			20	8/20-30			0	10	30
IV.	Coot:			200	8/20-30			0	30	300

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks 220

Coots 10

Total waterfowl usage during period 2,640

Peak waterfowl numbers 2,200

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by Cheeley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge Pretty Rock Months of May to August 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard			2000	8/20-30			9	150	3000
	Black duck									
	Gadwall			30	"			0	30	30
	Baldpate							6	60	
	Pintail			2000	"			15	200	3000
	Green-winged teal									
	Blue-winged teal			400	"			4	80	600
	Cinnamon teal									
	Shoveller			200	"			14	200	300
	Wood duck									
	Redhead			30	5/1-20			0		60
	Ring-necked duck									
	Canvas-back			20	"			0	10	40
	Scaup			200	"					300
	Golden-eye									
	Buffle-head									
	Ruddy duck			50	8/20-30			4	80	60
IV.	Coot:			1000	8/20-30					1500

3-1750
(Sept.1950) Interior - Duplicating Section, Washington, D.C. 82449

(over)

Form NR-1

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks 770

Coots _____

Total waterfowl usage during period 8,890

Peak waterfowl numbers 5,950

Areas used by concentrations _____

Principal nesting areas this season _____

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

71
1

WATERFOWL

Refuge Stewart Lake Months of May to August 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard			2000	5/20-30			2	50	3000
	Black duck									
	Gadwall			20	"					20
	Baldpate			80	"			1	20	100
	Pintail			1000	"					1800
	Green-winged teal									
	Blue-winged teal			600	"			3	80	600
	Cinnamon teal									
	Shoveller			100	"			0	20	100
	Wood duck									
	Redhead									
	Ring-necked duck									
	Canvas-back			30	5/1-20			0	10	40
	Scaup			200	"			0		
	Golden-eye									
	Buffle-head									
	Ruddy duck							0	20	30
	Unidentified							2		
IV.	Coot:			600	5/20-30			0	40	800

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks 210

Coots 10

Total waterfowl usage during period 6,150

Peak waterfowl numbers 4,630

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by Chesley M. Hinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge White Lake Months of May to August 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard			1000	8/20-30			4	80	1700
	Black duck									
	Gadwall			20	"			0	10	20
	Baldpate			100	"			0	10	150
	Pintail			500	"			9	180	500
	Green-winged teal									
	Blue-winged teal			200	"			1.	20	250
	Cinnamon teal									
	Shoveller			100	"			4	80	150
	Wood duck									
	Redhead			20	"			0		40
	Ring-necked duck									
	Canvas-back			20	7/8-20			0		20
	Scaup			100	8/1-20			0		200
	Golden-eye									
	Buffle-head									
	Ruddy duck			15	7/8					30
IV.	Coot:			800	8/20-30			0	80	800

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks 290

Coots 20

Total waterfowl usage during period 2,960

Peak waterfowl numbers 2,580

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Lake Ilo Months of May to August 1952

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared Grebe	Common		200	8/20-30					60	300
Western Grebe	None seen.									
Pied-billed Grebe	Common		30	8/20-30					20	40
White Pelican	"		300	"						400
Double-crested Cormorant	"		20	"						30
Great Blue-Heron	"		20	"					10	30
Black-crowned Night Heron	"		10	"						10
American Bittern									10	20
II. Shorebirds, Gulls and Terns:										
Killdeer									100	200
Willet									10	30
Lesser Yellow-legs									20	30
Greater Yellow-legs										100
Spotted Sand piper										100
Dowitcher									20	30
Avocet									10	20
Wilson's Phalarope									20	20
Marbled Godwit										200

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove			200	6/1-30		100	300
White-winged dove							
IV. Predaceous Birds:							
Golden eagle	1	8/10	1	8/10-20			
Duck hawk			4	8/20-30			
Horned owl			2	8/20-30			
Magpie	None seen.			-			
Raven							
Crow			100	5/1-20			
Marsh Hawk			40	8/20-30		20	40
Sparrow Hawk			20	8/20-30			20

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and-predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

74 3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge District IV Easements, as listed Months of May to August, 19 52

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
LAKE ILO										
Pheasant			10	150					250	It is believed that skunk destroyed a large percentage of nests in the vicinity south and west of Missouri River.
Sharp-tailed Grouse			3	30					40	
Hungarian Partridge			3	60					65	
HIDDENWOOD										
Pheasant			0	10					12	
Sharp-tailed Grouse			0	20					20	
Hungarian Partridge			0	30					40	
LAKE PATRICIA										
Pheasant			2	100					200	
Sharp-tailed Grouse			0	15					30	
Hungarian Partridge			0	20					40	
LEGION LAKE										
Pheasant			0	20					30	
Sharp-tailed Grouse			0	30					40	
Hungarian Partridge			0	30					40	
McLEAN										
Pheasant			0	10					20	
Sharp-tailed Grouse				10					20	
Hungarian Partridge				20					30	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES:	Use correct common name.
(2) DENSITY:	Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
(3) YOUNG PRODUCED:	Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
(4) SEX RATIO:	This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
(5) REMOVALS:	Indicate total number in each category removed during the report period.
(6) TOTAL:	Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
(7) REMARKS:	Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge **District IV Basements as listed** Months of **May** to **August**, 19**52**

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
PRETTY ROCK										
Pheasant			**2**	**200**					**400**	**It is believed skunk destroyed a large percentage of upland game nests.**
Sharp-tailed Grouse			**0**	**10**					**20**	
Hungarian Partridge			**0**	**20**					**30**	
STEWART LAKE										
Pheasant			**0**	**20**					**20**	
Sharp-tailed Grouse			**0**	**30**					**40**	
Hungarian Partridge			**0**	**20**					**20**	
WHITE LAKE										
Pheasant			**0**	**0**					**6**	**90% kill by hail.**
Sharp-tailed Grouse			**0**	**10**					**15**	**" " " "**
Hungarian Partridge			**0**	**20**					**30**	**" " " "**

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

76

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Lake Ilo Months of May thru August 1932.

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Wheat	75	—	75	—	—	—	—	75	—	75	—
Barley	30	—	30	—	—	—	—	30	—	30	—
Spelts and Wheat (Mixed)	191	—	191	—	—	—	—	191	—	191	—
TOTALS:	296	—	296	—	—	—	—	296	—	296	—

(8) Indicate shipping or collection points.....

(9) Grain is stored at Lake Ilo

(10) Remarks.....

NR-8a REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lbs., Corn (ear)—70 lbs., Wheat—60 lbs., Barley—50 lbs., Rye—55 lbs., Oats—30 lbs., Soy Beans—60 lbs., Millet—50 lbs., Cowpeas—60 lbs., and Mixed—50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

(3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.

(4) A total of Columns 2 and 3.

(6) Column 4 less Column 5.

(7) This is a proposed breakdown by varieties of grain listed in Column 6.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters grainary", etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

EASEMENT REFUGES IN DISTRICT IV-A

CLEARWATER LAKE.

I. General.

This easement was visited on July 16 for the purpose of making a brood count. The dry conditions that have prevailed in this area are reflected in the very low water level in this lake.

II. Wildlife.

At the time of the visit there were an estimated 400 ducks on the area, mainly dabblers. Brood count data are contained in the accompanying table on page 43.

III. Physical Developments.

The easement area is in need of new signs and markers to replace those that have been shot up by the local yokels. This reposting will be completed before the opening of the hunting season.

SHELL LAKE NATIONAL WILDLIFE REFUGE.

I. General.

This easement was visited by Stan Smith, Student Assistant, on July 11 for the purpose of making a brood count.

II. Wildlife.

At the time of the visit approximately 100 ducks were observed, mainly Mallards, Redheads and Canvasbacks. Brood count data are shown in the accompanying table on page 44.

LAKE ZAHL NATIONAL WILDLIFE REFUGE.

I. General.

Water levels have remained high at this easement all during the dry summer months. As in past years the lake was supporting large waterfowl concentrations.

II. Wildlife.

At the time of the brood counts, July 11 and 12, there were an estimated 5,000 ducks on the area. Of these, 60 percent were divers with the balance being mainly Mallards, Pintails, and Blue-winged Teal. Complete brood count data are contained in the accompanying table on page 45.

Also observed on the area were 150 White Pelicans, 125 Avocets, 150 Dowitchers, nine Black-crowned Night Herons, and 250 Western Grebes.

III. Physical Developments.

One mile of fence has been completed on the west boundary of the recently acquired school section and posts have been driven on the north and south boundaries. We have the materials needed to complete the job on hand and it is planned to finish the job in the very near future.

The refuge signs and markers are in bad shape and will be replaced as needed prior to opening of the hunting season.

Badgers have continued to work in the dike at this easement and we have a never ending job of filling in their diggings. This job will also be taken care of yet this fall.

---- * ----

BROOD COUNTS - CLEARWATER LAKE
July 16, 1952

CLASS	IA		IB		IIA		IIB		III		TOTALS	
SPECIES	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young
Mallard	1	7	--	--	--	--	1	9	1	6	3	22
Pintail	1	8	--	--	--	--	1	6	--	--	2	14
Blue-winged Teal	3	16	--	--	--	--	--	--	--	--	3	16
Ruddy Duck	1	9	1	11	--	--	--	--	--	--	2	20
Unidentified	--	--	1	7	1	5	--	--	--	--	2	12
TOTALS	6	40	2	18	1	5	2	15	1	6	12	84

BROOD COUNTS - SHELL LAKE
July 11, 1952

CLASS	IA		IB		IIA		IIB		III		TOTALS	
SPECIES	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young
Mallard	--	--	1	7	--	--	--	--	--	--	1	7
Canvasback	--	--	--	--	1	5	2	11	2	6	5	22
Unidentified	--	--	--	--	--	--	2	11	--	--	2	11
TOTALS			1	7	1	5	4	22	2	6	8	40

LAKE ZAHL NATIONAL WILDLIFE REFUGE
BROOD COUNTS
July 11 and 12, 1952

CLASS	IA		IB		IIA		IIB		III		TOTAL
SPECIES	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Broods	Number Young	Number Young
Mallard	4	31	1	5	3	19	2	11	3	12	78
Pintail	3	19	1	9	1	8	1	10	1	5	51
Gadwell	--	--	1	6	--	--	1	2	--	--	8
Baldpate	--	--	1	6	1	5	--	--	--	--	11
Shoveller	1	8	1	7	--	--	1	7	--	--	22
Blue-winged Teal	7	67	2	16	1	7	--	--	--	--	90
Green-winged Teal	4	21	--	--	1	5	1	5	--	--	31
Canvasback	1	7	--	--	2	16	2	9	--	--	32
Redhead	--	--	2	17	--	--	--	--	--	--	17
Ruddy Duck	4	23	1	6	--	--	--	--	--	--	29
Unidentified	3	19	6	35	3	18	2	8	--	--	80
Coot	2	6	3	6	2	3	--	--	--	--	7
TOTALS	29	201	19	113	14	81	10	52	4	17	464

WATERFOWL

Refuge Bloomfield Lake Months of May to August 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard							8	30	200
	Black duck									
	Gadwall									50
	Baldpate									50
	Pintail							2	30	150
	Green-winged teal									
	Blue-winged teal							8	45	150
	Cinnamon teal									
	Shoveller									50
	Wood duck									
	Redhead									10
	Ring-necked duck									
	Canvas-back									10
	Scaup									10
	Golden-eye									
	Buffle-head									
	Ruddy duck							2	25	50
IV.	Coot:									75

SUMMARIES

Dates waterfowl counts made 7/16/52

Percent of waterfowl area covered 100%

Dates brood counts made 7/16/52

Percent of area covered in brood counts 75%

Total production:

Geese

Ducks 150

Coots

Total waterfowl usage during period 855

Peak waterfowl numbers

Areas used by concentrations Entire water area.

Principal nesting areas this season

Reported by John R. Frye

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge Shell Lake Months of May to August 1952

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose									
III. Ducks:									
Mallard							1	40	300
Black duck									
Gadwall									50
Baldpate									50
Pintail								20	200
Green-winged teal									
Blue-winged teal								20	200
Cinnamon teal									
Shoveller								10	50
Wood duck									
Redhead									
Ring-necked duck									
Canvas-back							5	50	200
Scaup									
Golden-eye									
Buffle-head									
Ruddy duck									100
Unidentified							2		
IV. Coot:									

SUMMARIES

Dates waterfowl counts made 7/11/52

Percent of waterfowl area covered 100

Dates brood counts made 7/11/52

Percent of area covered in brood counts 75

Total production:

Geese

Ducks 140

Coots

Total waterfowl usage during period 1150

Peak waterfowl numbers

Areas used by concentrations

Principal nesting areas this season

Reported by Stanley E. Smith, Student Assistant

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge Lake Zahl Months of May to August 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard							15	150	1,000
	Black duck									
	Gadwall							2	20	200
	Baldpate							2	20	100
	Pintail							7	102	800
	Green-winged teal							6	62	150
	Blue-winged teal							10	180	500
	Cinnamon teal									
	Shoveller							3	45	125
	Wood duck									
	Redhead							2	34	500
	Ring-necked duck									
	Canvas-back							5	64	200
	Scaup									200
	Golden-eye									
	Buffle-head									
	Ruddy duck							5	53	250
IV.	Coot:							7	50	1,500

SUMMARIES

Dates waterfowl counts made 7/11 and 12/ 52

Percent of waterfowl area covered 75%

Dates brood counts made 7/11 and 12/52

Percent of area covered in brood counts 50%

Total production:

Geese

Ducks 928

Coots

Total waterfowl usage during period 5,525

Peak waterfowl numbers

Areas used by concentrations Entire water area

Principal nesting areas this season

Reported by John E. Fryo

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

LAKE ILO REFUGE.

I. GENERAL.

A. Weather Conditions.

Precipitation for the period at Lake Ilo was below normal. We were fortunate in that there were no really bad storms (most of the side roads were blocked with snow however for long periods). While there was some severe cold, mild spells occurred quite frequently. In general it was a favorable winter for upland game.

Most of the snow remained on the ground throughout the winter; melting did not start until March 26. The spring run-off occurred during the period April 1 - 5.

April was very warm with above normal temperatures and no precipitation.

Weather data for the period were as follows:

Month	Precipitation	Snowfall		Max. Temp.	Min. Temp.
January	0.37	6.0		43	-27
February	0.78	12.0		45	-28
March	0.63	13.0		46	-28
April	None	None		90	21
Total	1.78	31.0	Extremes	90	-28

B. Water Conditions.

The ice level was 20 inches below the spillway crest on January 1 and remained at that level until April 1 when the spring run-off started. On April 1 the water level raised 28 inches, to eight inches above spill crest. A peak of 30 inches above spillway level occurred on April 7. The water level fluctuated between 24 and 30 inches above spill level for three days (April 6, 7 and 8). By April 14 the water level had dropped to 0.4 foot above spill. There was only a very small amount of flow over the spill by April 30.

A winter survey was made by the North Dakota State Department of Health, Division of Water Pollution Control, of Lake Ilo on February 14 and 15. This survey was conducted to determine the effect of the discharge of sewage effluent from the Killdeer sewage plant (into Inlet Creek which empties into Lake Ilo). The following is quoted from the report received:

> No adverse influences traceable to the effluent of Killdeer's Imhoff tank were observed in the lake. Liquid wastes proceed only a short distance downstream during low flow conditions.

Dilution and exposure to stream conditions would likely mitigate any adverse effects they might have during stages of flow sufficient to convey them to the lake. Considerable organic matter from natural sources; e.g., vegetation and livestock wastes will have more affect on oxygen depletion than the sewage effluent. ------ During the winter of 1951-52 there appeared to be sufficient oxygen so that no fish kill is expected.

Table 1. on the following page shows certain physical and chemical features as determined by this survey.

C. Fires.

None. Although April was very dry, we were very fortunate that no fires occurred.

II. WILDLIFE.

A. Migratory Birds.

No mallards wintered on the refuge during the period as they have in the past. The first spring migrants appeared on March 29 when three Green-winged teal were seen. A few Mallards were seen on April 1, and on April 3 the first Pintails appeared. Migration was very slow and later than usual. Fewer geese were seen this spring than usual. 120 Canada geese were observed on the refuge on April 4, 150 White fronted-geese on April 14, and 75 Snow geese on April 15. The usual numbers of diving ducks were present on the refuge in April. It is estimated that 1000 Lesser Scaup, 200 Red heads and 100 Canvas backs were present the latter part of April. 17 White Pelicans were observed on the refuge April 19 and a number have been present since that date. The shore bird migration has been slow; only a few species have been seen - Killdeer, Western Willett and Avocet. Franklin's Gulls, Ring-billed Gulls and Herring Gulls have also been seen. 500 Sandhill cranes were observed on April 8.

B. Upland Game Birds.

It is estimated that 150 Pheasants were using the refuge during the period. The Pheasants wintered very well and it is believed that there were no winter losses.

A number of Sharp-tailed Grouse have been observed on the refuge and in the vicinity of the refuge during the period. Four Sharp-tails were found dead; it is believed these birds died as a result of flying into highline wires.

Only a few Hungarian Partridge have been observed on the refuge this spring. It was estimated that 40 were using the refuge during the winter, but their numbers declined. It is estimated that only 20 were using the area during April.

Table 1. Lake Ilo - Physical and chemical features

Station	Depth water	Depth ice	Depth sampled	Bottom	Temp. °C.	pH	O_2	Bicarb. Alk.	NH_3 N	NO_2 N	PO_4	Free CO_2
Near Dam	4'	3'	Water surface	Sandy muck	1/2°	7.5	4.4 ppm.	222 ppm.	1.8 ppm.	0.0	0.0	--
Before FWS Station	9'	3'	Water surface	Muck	1°	7.5	6.0	222	1.6	Tr.	0.0	12
			3'	-	1°	7.5	5.2	226	1.4	Tr.	0.0	12
			6'	-	2°	7.4	3.2	242	1.6	0.0	0.0	13
			9'	-	2.5°	7.3	1.2	266	1.8	0.0	0.0	18
Mouth of Inlet Creek	3.5'	3'	Water surface	Muck	1.5°	7.3	4.0	234	1.1	0.0	0.0	--
			3'	-	-	-	0.8	-	-	-	-	--

C. Big Game Animals.

None have been observed on the refuge during the period.

D. Fur Animals, Predators, Rodents, and other Mammals.

A permit was issued to trap fur-bearing animals on the refuge. Eight mink and 34 muskrats were trapped during the season. The trappers share which was one-half of the catch was sold for $87.00. The refuge share has not yet been sold.

A few skunk have been observed on the refuge this spring. It is believed their numbers were reduced by gassing dens last fall.

One fox was observed on the refuge during the period. No coyotes have been observed on refuge or in the immediate vicinity this period.

Three beaver were trapped near the refuge and one was observed on the refuge this spring.

A number of muskrat have been observed on the refuge this spring; it is believed they survived the winter better than usual. There should be a good population this fall.

A number of weasel were observed this winter; none were trapped. It is believed their number is small and approximately the same as last year. See NR -4 for summary of small mammal populations.

E. Predacious Birds, including Crows, Ravens, Magpies.

A few Golden Eagles were seen this winter on the refuge but their numbers seemed to be less than usual. The last seen was on April 12. Three Prairie Falcons have been observed on the refuge during the period. A number of Marsh Hawks have been observed - the first seen this spring was on the 1st of April. The first Crows appeared during the latter part of March, and they have been present on the refuge ever since.

A large number of Sparrow hawks were observed during spring migration in April.

F. Fish.

No winter fishing was allowed at Ilo this year as the fish were too small. Most of the fish winter killed in 1951. It is believed that the fish survived the past winter very well - no dead ones have been observed. A number of small perch and bullheads have been seen along the shore. Small perch and minnows were numerous in the lake last summer when test nettings were made. The water in the lake was tested for oxygen this winter on the 14th and 15th of February and

was considered good for that time of the year. (See Section I,B, Water Conditions).

III. REFUGE DEVELOPMENT - MAINTENANCE

A. Physical Developments.

The following maintenance and construction projects were completed during the period.

1. Completed installing asphalt tile on basement floor of Ilo Residence. (50% during this period).
2. Hauled ashes and rubbish away from headquarters and hauled coal for heating office and garages.
3. Opened snow-blocked roads several times and maintained roads.
4. Installed new cedar shingles and lap-siding, built door and painted granary at headquarters.
5. Assisted making an oxygen test of water in Lake Ilo.
6. Painted basement of residence, removed paint from shower bath and smoothed concrete walls in basement.
7. Made minor repairs on IHC Pickup #I-16949 and Diamond T Truck #I-16956.
8. Painted and repaired stake box on Diamond T #I-16956.
9. Checked and watched spillway and dam during spring run-off.
10. Removed snow from control culverts and road culverts (at Ilo and Easements).
11. Cultivated ground for trees that are to be planted this spring.
12. Repaired tools.
13. Made trip to Des Lacs Refuge for fencing materials and boat.
14. Repaired creek crossing on refuge road.

B. Plantings.

No grain crops are to be planted by refuge personnel. The following cooperative farming permits are in effect for agriculture use on Lake Ilo:

Permit No. 81 - Charles Schollmeyer - 55 acres barley or wheat; Permit No. 82 - Tom Donohoe, 45 acres barley and wheat, 1/3 to 1/2 of land will be summer fallowed. No seeding has been accomplished to date.

IV. ECONOMIC USES.

A. Grazing. None this period.

B. Haying. None this period.

C. Fur Harvest.

A trapping permit was issued to Mr. A. B. Rosendahl of Dunn Center, N. Dak. for the taking of mink, muskrat, skunk and weasel; the mink and muskrat pelts to be shared on a 50-50 basis. The total take was eight mink, 34 muskrat, and three skunk. See NR 4 for summary of fur harvest.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Bird Banding.

One pheasant cock was banded that was caught in the garage last winter. This bird has been observed near headquarters many times this spring.

VI. PUBLIC RELATIONS

A. Public Uses.

1. Hunting Use. None.

2. Fishing Use. None.

3. Miscellaneous Use. The Lake Ilo Recreational area, maintained under cooperative agreement by Dunn County, has been used by several parties of picnickers during April. Trees are to be cultivated and the grounds kept clean. Trees will be planted to replace those killed by mice.

DISTRICT IV EASEMENTS

HIDDENWOOD

I. GENERAL.

Precipitation was below average during the period. The water level was two feet higher than last spring due to the fact that someone had put a concrete plug in the highway culvert. This matter will be investigated on our next easement trip.

II. WILDLIFE.

One trapping permit was issued to a local farmer who caught only one mink (sold for $31.00 to Sears, Roebuck) and 13 muskrats ($2.10 ea. from Sears). The permittee also reported that he caught four mink near the refuge and that another trapper caught six mink.

The permittee, Mr. Wilson, caught another would-be trapper running his (Mr. Wilson's) trapline. This undoubtedly accounts for Mr. Wilson's small mink take from the refuge as mink sign had been abundant last fall. This other man had applied for a permit to trap fox on the refuge, despite the fact that no fox sign had been observed or reported.

The area was visited on April 28 and the following ducks were observed: 30 Pintails, 20 mallards, five Canvas backs, six Shovellers and four Lesser Scaup. Five crows and three Sharp-tailed Grouse were also seen. It is believed that a few Pheasants are using the area - a local farmer reported that there were a few seen this winter.

III. PHYSICAL DEVELOPMENTS.

1. Contacted trapper in regards to his take.
2. Observed birds and checked water level.
3. Contacted farmers living near refuge.

LAKE PATRICIA

I. GENERAL.

This area was not visited during the period as the State Game and Fish Department now controls most of the area, including the part where the water control structures are located.

The snow fall was above normal in this vicinity and the water level is good.

II. WILDLIFE.

The area was not visited during the report period, but it is believed the usual number of ducks were present during migration. Judging from Pheasant populations around Pretty Rock Refuge it is belived that a number of Pheasants, Sharptails and Huns. are using the area.

III. PHYSICAL DEVELOPMENTS.

None.

LEGION LAKE

I. GENERAL.

Although the snow fall was considered to be below normal in this vicinity during the period, the snow contained a large amount of water and the run-off was greater than normal. The water level was two feet above spillway crest on April 3 and reached a peak of three feet on April 5. A small stream was flowing over on April 20 and April 28 when visited. The water level was approximately 12 inches below crest at the beginning of the period.

Although the rocks that were placed on the slope of the spillway last fall were washed down below the spillway they must have done some good, as the spillway did not wash out. It is now in very poor condition but still holding. Due to the fact that this area will be flooded by the Garrison Dam in the near future, we are not very concerned about the present condition.

II. WILDLIFE.

It is believed that the usual number of birds used the area during the spring migration. The following birds were observed when the area was visited; April 3 - three Pintails; April 20 - one Great Blue Heron and 150 ducks consisting of Lesser Scaup, Mallards, Pintails, Shovellers, Baldpates and Canvas backs. On April 28 it was estimated that 100 ducks were on the area; these were Mallards, Pintails, Shovellers, Lesser Scaup, Canvas backs and Redheads.

The usual numbers of Sharp-tails, Huns, and Pheasants are believed to have used the area. None were observed on the refuge when visited, but a number of these birds were observed in the vicinity.

A trapping permit was issued to a local farm boy who caught four mink. No muskrats were trapped as their population was very small.

III. PHYSICAL DEVELOPMENTS.

1. Structures were inspected and water levels checked on April 3, 20 and 28.
2. Birds were observed on the above dates.

McLEAN

I. GENERAL.

The water level was one foot below spillway crest at the beginning of the period. It was14 inches above crest on April 3 and the peak was two feet on April 20. A small stream was flowing over the spillway on April 28.

The structures were checked on April 3 and 28 and the spillway appeared to be in good condition. A small amount of wash had occurred on the dam; this will be repaired this summer. There were a few sunken places in the dam, caused by muskrats runs, which will also be repaired this summer.

The snowfall was considered below normal and there was no precipitation in April.

II. WILDLIFE.

Two trapping permits were issued to local farm boys. Sixteen muskrats and one mink were trapped. The mink was sold for $20.00 and the muskrats for $0.75 each to a local buyer.

It is believed that the muskrat population is larger this spring than usual. It was also noted that several mink are using the area.

A few Sharptailed Grouse, Hungarian Partridge and Pheasants are using the refuge. None were actually observed but were reported to be present by farmers and trappers.

It is believed that the usual number of waterfowl used the area during migration. The following birds were observed on April 28 - 30 Lesser Scaup, 20 Pintails, 20 Mallards, six Shovellers, and five Canvas backs.

III. PHYSICAL DEVELOPMENTS.

1. Structures and water levels were checked on April 3 and 28.
2. Birds were observed on April 28.

PRETTY ROCK

I. GENERAL.

The snowfall in this vicinity was above average during January, February and March. No precipitation occurred in April.

The water level was ten inches below spillway crest at the biginning of the period. The run-off started on April 1 and the peak of three feet above crest was reached on April 4. A small stream was flowing over the spillway on April 20.

II. WILDLIFE.

On April 20 an estimated 300 ducks were observed; these were Scaup, Shovellers, Pintails, Mallards, Blue-winged teal and Baldpates. Twenty Pheasants were also seen. There appeared to be fewer waterfowl than usual on this area.

The Pheasants appeared to have wintered very well; it is estimated that 300 used the area during the report period. (This number was reported by a farmer living on the refuge who complained that they had done a great deal of damage to his stacks; last year he complained that there weren't any!)

No Sharp tailed Grouse or Hungarian Partridges were observed but it is believed the usual number are using the area. Several were observed in the vicinity.

Two trapping permits were issued; one permittee was contacted who had caught one mink and 14 muskrats. He also reported that he believed the other trapper had caught about the same number. Signs of muskrats were observed and it is believed the muskrat population will be larger than usual this fall.

III. PHYSICAL DEVELOPMENTS.

1. A channel was shoveled through the snow in the spillway and under the highway bridge on March 31.
2. Structures were inspected on April 20 and flood damage was estimated.
3. Birds observed on April 20.

Structures:

The spillway that was repaired last year, by installing piling and concrete caps over piling at crest of spillway, appeared to be in good condition. There was some wash below the apron on the down stream side of the spillway, and a small portion of the north down-stream wing wall that is constructed of rocks had caved in. It is estimated that 100 cu. yds. of rock placed below the spillway will adequately repair the damage.

The highway that crosses the lake on the west side appeared to be in good condition, with the exception that the gravel and scoria that had been placed on the surface was all gone (this washed away during the 1950 run-off).

The dike appeared to be in good condition with the exception of a few muskrat runs. A small amount of repair work will be necessary. The fence around the dike also is in need of repair.

STEWART LAKE

I. GENERAL.

Snowfall was above normal during January, February and March. No precipitation occurred in April. The spring run-off was later than usual and believed to be about the same as the 1950 run-off, possibly a little larger. It is estimated that the peak run-off was three feet above spill crest on April 7. An attempt was made to visit the refuge on March 29 before run-off started but it was impossible as roads were blocked. On April 5 the structures were checked and the spillway was clear of snow. The run-off had not reached the lake on this date but came in on April 6 and 7.

The area was visited on April 19 and structures were checked and birds observed.

The spillway was found to have been damaged by the high water during the run-off. This spillway is constructed of loose rock and a large amount of damage occurred during the 1950 spring run-off when the rock settled on the slope and a portion of the wall settled. This spring during the run-off more of the slope settled and most of the south wall settled or was washed completely away. It is estimated that this spillway could be temporarily repaired with the following work:

150 cu. yds. of fill to be placed in wash in wall.
60 cu. yds. of rock in wall.
300 cu. yds. of rock in slope and crest.
60 cu. yds. of scoria or gravel to be placed under rock that are to be placed along wall.

This spillway could last for many years as it is, due to the fact that there is a natural spillway between it and the lake proper. This natural spillway is approximately 1000 feet long. The present rock spillway is actually several hundred feet from the lake.

II. WILDLIFE.

It is believed that the usual numbers of waterfowl used the area this year.

The severe storms in March caused an estimated 80 percent loss of the pheasant populations. Sharptails and Huns, however, are present in usual numbers.

III. PHYSICAL DEVELOPMENTS.

1. Structures were checked on April 19 and an estimate of flood damage and repairs needed was made.
2. Birds were observed on April 19.

WHITE LAKE

I. GENERAL.

The snowfall in this area was above normal in January, February and March. No precipitation occurred in April. The spring run-off was heavy and the peak was approximately one foot above spillway level. Only minor damage occurred on this easement.

II. WILDLIFE.

On April 19 an estimated 350 ducks were observed; these were Mallards, Gadwalls, Baldpates, Pintails, Shovellers, Redheads, Canvasbacks and Scaup.

The severe storms in March raised havoc with the Pheasant population in this area; it is estimated that 80 percent of the population was killed. The Sharptails and Huns were not seriously affected and it is believed they are present in usual numbers.

Fur bearer populations remain at their usual levels. One trapping permit was issued and four mink were taken.

III. PHYSICAL DEVELOPMENTS.

1. The refuge was visited on April 19; structures were checked and an estimate of flood damage was made.
2. Birds were observed on April 19.

---- * ----

NOTE: The report this period for Lake Ilo and the District IV Easement Refuges is based on data supplied by Mr. Chesley M. Dinkins, Maint. Man (General) of Lake Ilo.

WATERFOWL

Refuge Lake Ilo Months of January to April 19 42

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose	120	4/4	300	4/6-14	80	4/15			300
	Cackling goose									
	Brant									
	White-fronted goose	150	4/14	150	4/14-20	120	4/14			150
	Snow goose	75	4/15	80	4/14	80	4/14			80
	Blue goose									
III.	Ducks:									
	Mallard	4	4/1	600	4/1-10					1000
	Black duck									
	Gadwall	2	4/21	50						50
	Baldpate	30	4/4	300	4/4-15					400
	Pintail	15	4/3	800	4/6-15					1000
	Green-winged teal	3	3/29	30	3/29-4/10					30
	Blue-winged teal	30	4/24	200	4/20-30					300
	Cinnamon teal									
	Shoveller	2	4/14	100	4/14-30					200
	Wood duck									
	Redhead	25	4/15	200	4/15-20					200
	Ring-necked duck									
	Canvas-back	7	4/15	200	4/15-20					200
	Scaup	20	4/12	1200	4/20-30					1500
	Golden-eye	3	4/22	20	4/25-30					20
	Buffle-head	3	4/22	20	4/20-30					20
	Ruddy duck	30	4/26	200	4/25-30					200
IV.	Coot:	30	4/30	20	4/30					30

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 5770

Peak waterfowl numbers 4500

Areas used by concentrations entire area.

Principal nesting areas this season _____

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

61

WATERFOWL

Refuge Middlewood Months of January to April 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose			None observed.						
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:	Observed 4/28/52.								
	Mallard	20	4/28							300
	Black duck									
	Gadwall									200
	Baldpate									5
	Pintail	20	4/28							200
	Green-winged teal									10
	Blue-winged teal									50
	Cinnamon teal									
	Shoveller	6	4/28							20
	Wood duck									
	Redhead									20
	Ring-necked duck									
	Canvas-back									20
	Scaup									
	Golden-eye	22	4/28							100
	Buffle-head									
	Ruddy duck									
IV.	Coot:									

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 1070 Est. _____

Peak waterfowl numbers _____

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by _____

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge Lake Patricia Months of January to April 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose			None observed.						
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
				Area not visited during period. Estimated waterfowl usage.						
III.	Ducks:									
	Mallard									200
	Black duck									
	Gadwall									20
	Baldpate									400
	Pintail									200
	Green-winged teal									10
	Blue-winged teal									200
	Cinnamon teal									
	Shoveller									100
	Wood duck									
	Redhead									100
	Ring-necked duck									
	Canvas-back									100
	Scaup									400
	Golden-eye									10
	Buffle-head									10
	Ruddy duck									50
IV.	Coot:									50

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 1850 Est.

Peak waterfowl numbers _____

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by _____

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

63

WATERFOWL

Refuge Legion Lake Months of January to April 19 52

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose									80
Cackling goose									
Brant			None observed.						
White-fronted goose									80
Snow goose									80
Blue goose									
III. Ducks:	Ducks observed April 28.								
Mallard	100	4/28							400
Black duck									
Gadwall	2								20
Baldpate	80								160
Pintail	100								300
Green-winged teal	None								40
Blue-winged teal									40
Cinnamon teal									
Shoveller	20								40
Wood duck									
Redhead	20								40
Ring-necked duck									
Canvas-back	12								40
Scaup	200								200
Golden-eye									10
Buffle-head									10
Ruddy duck									40
IV. Coot:									80

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 1480 Est.

Peak waterfowl numbers _____

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by _____

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

84

WATERFOWL

Refuge McLean Months of January to April 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
		Ducks observed April 28.								
III.	Ducks:									
	Mallard	20								200
	Black duck									
	Gadwall	None observed.								10
	Baldpate	20								50
	Pintail	20	4/28							200
	Green-winged teal									20
	Blue-winged teal	None observed.								20
	Cinnamon teal									
	Shoveller	6	4/28							40
	Wood duck									
	Redhead	20								40
	Ring-necked duck									
	Canvas-back	5	4/28							40
	Scaup	30								300
	Golden-eye	None observed.								
	Buffle-head	None observed.								
	Ruddy duck									
IV.	Coot:	None observed.								

(over)

3-1750
(Sept.1950) Interior - Duplicating Section, Washington, D.C. 82449

Form NR-1

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 950 Est.

Peak waterfowl numbers _____

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by _____

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u>. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the <u>Summaries</u> receive careful attention since these data are necessarily based on an analysis of the rest of the form.

65

WATERFOWL

Refuge Pretty Rock Months of January to April 19 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose									100
	Cackling goose									
	Brant									
	White-fronted goose	None observed.								100
	Snow goose									100
	Blue goose									
		Ducks observed April 20, 1952.								
III.	Ducks:									
	Mallard	100	4/20	500	4/1-10					500
	Black duck									
	Gadwall	2	4/20	10	4/20-30					10
	Baldpate	100	4/20	200	4/1-15					200
	Pintail			500	4/1-10					500
	Green-winged teal			10	4/10-20					10
	Blue-winged teal			100	4/20-30					100
	Cinnamon teal									
	Shoveller	50	4/20	50	4/20-30					50
	Wood duck									
	Redhead	20	4/20	50	4/20-30					50
	Ring-necked duck									
	Canvas-back	8	4/20	50	4/20-30					50
	Scaup	100	4/20	300	4/20-30					300
	Golden-eye			10	4/20-30					10
	Buffle-head			10	4/20-30					10
	Ruddy duck			20	4/20-30					20
IV.	Coot:			50	4/20-30					50

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 2200

Peak waterfowl numbers 1860

Areas used by concentrations entire area.

Principal nesting areas this season _____

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge Stewart Lake Months of January to April 19 52

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose	None observed.		200	4/10-20					200
Cackling goose									
Brant									
White-fronted goose	None observed.		150	4/10-20					150
Snow goose	12	4/19	100	4/10-20					100
Blue goose									
III. Ducks:									
Mallard			1000	4/1-20					1000
Black duck									
Gadwall			10	4/20-30					10
Baldpate			200	4/1-20					200
Pintail			1000	4/1-10					1000
Green-winged teal			10	4/1-10					10
Blue-winged teal			300	4/20-30					300
Cinnamon teal									
Shoveller			30	4/20-30					30
Wood duck									
Redhead			30	4/10-20					30
Ring-necked duck									
Canvas-back			30	4/10-20					30
Scaup			300	4/10-20					300
Golden-eye			10	4/20-30					10
Buffle-head			10	4/20-30					10
Ruddy duck			30	4/20-30					30
IV. Coot:			30	4/20-30					30

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 3460

Peak waterfowl numbers 3460

Areas used by concentrations entire area.

Principal nesting areas this season _____

Reported by Chesley M. Dirkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

67

WATERFOWL

Refuge White Lake Months of January to April 19 38

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose	150	4/4	150	4/4-10					150
Cackling goose			(Observed by farmer living on refuge.)						
Brant									
White-fronted goose			80	4/10-20					80
Snow goose									
Blue goose									
III. Ducks:	Ducks observed:								
Mallard	50	4/19	400	4/10-20					400
Black duck									
Gadwall	2	4/19	20	4/20-30					20
Baldpate	80	4/19	100	4/10-20					100
Pintail	50	4/19	400	4/10-20					400
Green-winged teal			10	4/10-20					10
Blue-winged teal			200	4/20-30					200
Cinnamon teal									
Shoveller	20	4/19	20	4/20-30					20
Wood duck									
Redhead	80	4/19	80	4/10-20					160
Ring-necked duck									
Canvas-back	8	4/19	20	4/10-20					20
Scaup	100	4/19	200	4/10-20					200
Golden-eye									
Buffle-head									
Ruddy duck									
IV. Coot:			80	4/10-30					80

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 1770

Peak waterfowl numbers 1670

Areas used by concentrations entire area.

Principal nesting areas this season _____

Reported by Chesley M. Dinkins

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Lake Ilo Refuge Months of January to April 194 52

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Sandhill Crane	800	4/8	500	4/8-15						1000
White Pelican	17	4/19	35	4/20-30						50
Great Blue Heron	1	4/7								
II. Shorebirds, Gulls and Terns:										
Killdeer	2	4/1	50	4/10-20						200
Willet	2	4/26								20
Avocet	2	4/26								10
Wilson Phalarope	30	4/28								40
Franklin's Gull	50	4/20	200	4/20-30						20
Ring Billed Gull	50	4/20	300	4/20-30						800
Herring Gull	8	4/8	50	4/20-30						200

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove					
White-winged dove					
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Horned owl					
Magpie					
Raven					
Crow					

Reported by.....

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

74

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Lake Ilo Months of January thru April 19 52

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Wheat	75	—	75	—	—	—	—	75	—	75	—
Barley	30	—	30	—	—	—	—	30	—	30	—
Spelts and Wheat (Mixed)	191	—	191	—	—	—	—	191	—	191	—
TOTALS:	296	—	296	—	—	—	—	296	—	296	—

(8) Indicate shipping or collection points .....

(9) Grain is stored at Lake Ilo

(10) Remarks .....

NR-8a REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lbs., Corn (ear)—70 lbs., Wheat—60 lbs., Barley—50 lbs., Rye—55 lbs., Oats—30 lbs., Soy Beans—60 lbs., Millet—50 lbs., Cowpeas—60 lbs., and Mixed—50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

(3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.

(4) A total of Columns 2 and 3.

(6) Column 4 less Column 5.

(7) This is a proposed breakdown by varieties of grain listed in Column 6.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters grainary", etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

EASEMENT REFUGES IN DISTRICT 4A

CLEARWATER LAKE NATIONAL WILDLIFE REFUGE.

I. General.

This easement was visited on April 19. At that time the lake was still about 70% frozen over but all snow had disappeared and the major run off had occurred. This area received somewhat more snowfall during the past winter and water levels should be satisfactory this summer.

II. Wildlife.

While the lake was still frozen over, a few ducks were observed utilizing what little open water as was afforded by the lake edges. There were approximately 25 duck observed. The total concentration was evenly divided between Mallards and Pintails.

III. Physical Developments.

The usual numbers of refuge signs and markers have been used for target practice this past year and these will be replaced later in the summer as time permits.

SHELL LAKE NATIONAL WILDLIFE REFUGE.

I. General.

The area was visited on April 19 at which time the lake was about half frozen over. There appeared to have been a heavy run off and water levels will be again satisfactory this year.

II. Wildlife.

There were an estimated 678 ducks present in the open water areas on the day of the visit. Mallards, Pintails, and Baldpate made up the bulk of the population but there was a good showing of divers, mainly Scaup.

Also observed were 11 American Mergansers, 25 Sharptail Grouse and 200 Crows.

III. Physical Developments.

The dike at this easement washed out in the spring of 1950 but the lake has retained satisfactory water levels the past two years. As is the case at all easement refuges, much time will be needed to replacedthe many shot up signs and markers.

LAKE ZAHL NATIONAL WILDLIFE REFUGE.

I. General.

The area was visited on April 19 and again on April 25. On the first visit the lake was completely free of ice and the major run off had already occurred. There was about 3" of water over the spillway at this time and water levels were much higher than at this same time last year. On the second visit, April 25, the water flowing over the spillway had tapered off to about 1/2". All indications are that there will be very satisfactory water levels in Lake Zahl this summer.

II. Wildlife.

On April 19 there were an estimated 5,000 ducks present on the lake. Of these an estimated 3,000 were Scaup and the balance being made up of Mallards, Pintails and Baldpates mainly, but with a sprinkling of all other common species. When the area was again visited on April 25, the waterfowl numbers had diminished to an estimated 800 birds.

Also observed on the two visits were 12 White Pelicans, 25 Killdeer, 6 Marsh Hawks, 4 American Rough-legged Hawks, 7 Avocets, 1 Black-crowned Night Heron, 300 Lesser Yellow-legs.

III. Physical Developments.

The dike is in fair condition with only the usual badger holes to be filled in at a later date. This easement suffers the least of any in having refuge signs and markers shot up. Only about 1/3 of these signs will have to be replaced this summer.

Materials have been purchased for the fencing on the Government-owned School Section and this job will be completed as soon as it becomes possible to spare the time.

40

WATERFOWL

Refuge Shell(McAlmond) Lake Months of January to April 19 52

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan	None observed.								
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose	None observed.								
III. Ducks:									
Mallard			162	4/19					175
Black duck	None observed.								
Gadwall			34	4/19					50
Baldpate			75	4/19					100
Pintail			96	4/19					125
Green-winged teal			2	4/19					10
Blue-winged teal	None observed.								
Cinnamon teal	"	"							
Shoveller			20	4/19					30
Wood duck	None observed.								
Redhead			13	4/19					25
Ring-necked duck	None observed.								
Canvas-back			5	4/19					15
Scaup			225	4/19					250
Golden-eye	None observed.								
Buffle-head	"	"							
Ruddy duck			21	4/19					30
IV. Coot:			25	4/19					35

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 715

Peak waterfowl numbers 678

Areas used by concentrations Open water areas.

Principal nesting areas this season _____

Reported by John R. Frye

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

41

WATERFOWL

Refuge Clearwater Lake Months of January to April 19 38

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan	Lake still frozen over at time of visit.								
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose									
III. Ducks:									
Mallard			12	4/19					80
Black duck									
Gadwall									
Baldpate									
Pintail			18	4/19					80
Green-winged teal									
Blue-winged teal									
Cinnamon teal									
Shoveller									
Wood duck									
Redhead									
Ring-necked duck									
Canvas-back									
Scaup									
Golden-eye									
Buffle-head									
Ruddy duck									
IV. Coot:									

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period _____

Peak waterfowl numbers _____

Areas used by concentrations _____

_____

Principal nesting areas this season _____

_____

Reported by _____

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u>. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the <u>Summaries</u> receive careful attention since these data are necessarily based on an analysis of the rest of the form.

WATERFOWL

Refuge Lake [illegible] Months of January to April / 49

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. Swans:									
Whistling swan	None observed.								
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose	None observed.								
III. Ducks:									
Mallard			500	4/19					700
Black duck	None observed.								
Gadwall			50	4/19					100
Baldpate			500	4/19					500
Pintail			350	4/19					500
Green-winged teal			7	4/25					50
Blue-winged teal			10	4/25					50
Cinnamon teal	None observed.								
Shoveller			150	4/19					200
Wood duck	None observed.								
Redhead			50	4/19					150
Ring-necked duck	None observed.								
Canvas-back			50	4/19					100
Scaup			2500	4/19					5000
Golden-eye	None observed.								
Buffle-head			25	4/19					25
Ruddy duck			50	4/19					100
IV. Coot:			300	4/19					500

SUMMARIES

Dates waterfowl counts made _____

Percent of waterfowl area covered _____

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 5,075

Peak waterfowl numbers 4,975

Areas used by concentrations Entire water area.

Principal nesting areas this season _____

Reported by John R. Pryo

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: The greatest number of the species present in a limited interval of time.

(4) Last seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

46

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge District 4A Easement Refuges Year ending April 30, 1952

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator * Control	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Popula-tion
Lake Zahl Nat'l Wildlife Refuge:														
Muskrat				150				1-52	159					100
Mink				9				1-52	9					25
Skunk														20
Coyote														2
Badger														40
Weasel														5
Shell Lake Nat'l Wildlife Refuge:														
Muskrat														30
Mink														15
Weasel														5
Skunk														10
Clearwater Lake Nat'l Wildlife Refuge:														
Muskrat														20
Mink														15
Weasel														2

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

116007

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge **District IV Easements, as listed** Months of **January** to **April**, 19**42**

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
LAKE ILO										
Pheasant					**1 M to 3 F**				**150**	**No winter kill noted.**
Sharp-tailed Grouse									**30**	
Hungarian Partridge									**20**	
HIDDENWOOD										
Pheasant									**10**	
Sharp-tailed Grouse									**20**	
Hungarian Partridge									**40**	
LAKE PATRICIA										
Pheasant									**100**	
Sharp-tailed Grouse									**20**	
Hungarian Partridge									**40**	
LEGION LAKE										
Pheasant									**10**	
Sharp-tailed Grouse									**20**	
Hungarian Partridge									**20**	
McLEAN										
Pheasant									**15**	
Sharp-tailed Grouse									**20**	
Hungarian Partridge									**30**	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge **District IV Easements, as listed** Months of **January** to **April**, 19**52**

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
PRETTY ROCK										
Pheasant					**1 M to 3 F**				**200**	**Very little winter kill.**
Sharp-tailed Grouse									**10**	
Hungarian Partridge									**40**	
STEWART LAKE										
Pheasant									**30**	**80% winter kill.**
Sharp-tailed Grouse									**20**	
Hungarian Partridge									**20**	
WHITE LAKE										
Pheasant									**10**	**80% winter kill.**
Sharp-tailed Grouse									**20**	
Hungarian Partridge									**20**	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

71

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge District IV Easements, as listed Year ending April 30, 1952

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5) Total Population
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Muskrat	Lake Ilo			34				T-4857	17	17	17			300
Mink				8					4	4	4			15
Coyote														0
Skunk				5					5	0		5		10
Badger				0										2
Weasel				0										10
House Cat				0										3
Beaver				0										1
Cotton Tail Rabbit														10
Jack Rabbit														40
Muskrat	Hiddenwood			15				#57 S-1400	15					100
Mink				1					1					10
Coyote														0
Skunk				5					5			5		10
Badger				1					1					3
Weasel														10
Jack Rabbit														3
Cotton Tail Rabbit														20
Red Fox														2

* List removals by Predator Animal Hunter

REMARKS:

Reported by Chesley M. Dinkins

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

116007

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge District IV Easements, as listed Year ending April 30, 1952

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator * Control	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Popula-tion
Muskrat	Lake Patricia			None										80
Mink				"										10
Skunk				"										10
Jack Rabbit				"										10
Cotton Tail Rabbit				"										20
Muskrat	Legion Lake			None				#50						20
Mink				4				S-1400	4					8
Skunk				None										10
Weasel				"										10
House cat				"										4
Cotton Tail Rabbit				"										10
Jack Rabbit				"										10
Badger				"										2
Muskrat	McLean			16				#68 &	16					70
Mink				1				65	1					5
Skunk								S-1400						6
Badger														2
Weasel														6
Jack Rabbit														4

* List removals by Predator Animal Hunter

REMARKS:

Reported by Chesley M. Dinkins

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

116007

Form NR-4

SMALL MAMMALS

Refuge **District IV Easements, as listed** April 30, 19**52**

(1) Species	(2) Density		(3) Removals					(4) Disposition of Fur						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	For Re-stocking	For Research	Permit Number	Trappers' Share	Refuge Share	Total Refuge Furs Shipped	Refuge Income	Furs Donated	Furs Destroyed	Total Population
Muskrat	**Pretty Rock**	**Estimated**		**30**				**No's.63**	**30**						**300**
Mink				**2**				**& 64**	**2**						**10**
Skunk				**0**				**S-1400**							**10**
Weasel				**0**											**4**
Jack Rabbit				**0**											**20**
Muskrat	**Stewart Lake**			**0**				**No. 61**							**20**
Mink				**0**				**S-1400**							**10**
Weasel				**0**											**4**
Ja ck Rabbit				**0**											**16**
Muskrat	**White Lake**			**0**				**No. 62**							**20**
Mink				**4**				**S-1400**	**4**						**6**
Skunk				**0**											**10**
Weasel				**0**											**4**
Jack Rabbit				**0**											**20**

REMARKS:

1615

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i.e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan. "List of North American Recent Mammals" by G. S. Miller, Jr., a very good reference, is now out of print, although a revision is scheduled for publication in the near future.)

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.) Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year. Also show any removals not falling under heading listed.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market and the total income to the refuge by species, including share-trapped furs and furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.